



**MANHOLE INSPECTION PROGRAM
FOR THE
JONES FALLS SEWERSHED**

CITY OF BALTIMORE PROJECT NO. 994



MANHOLE DEFECT MANUAL

**JONES FALLS COLLECTION SYSTEM
EVALUATION AND SEWERSHED PLAN
CITY OF BALTIMORE PROJECT 994**

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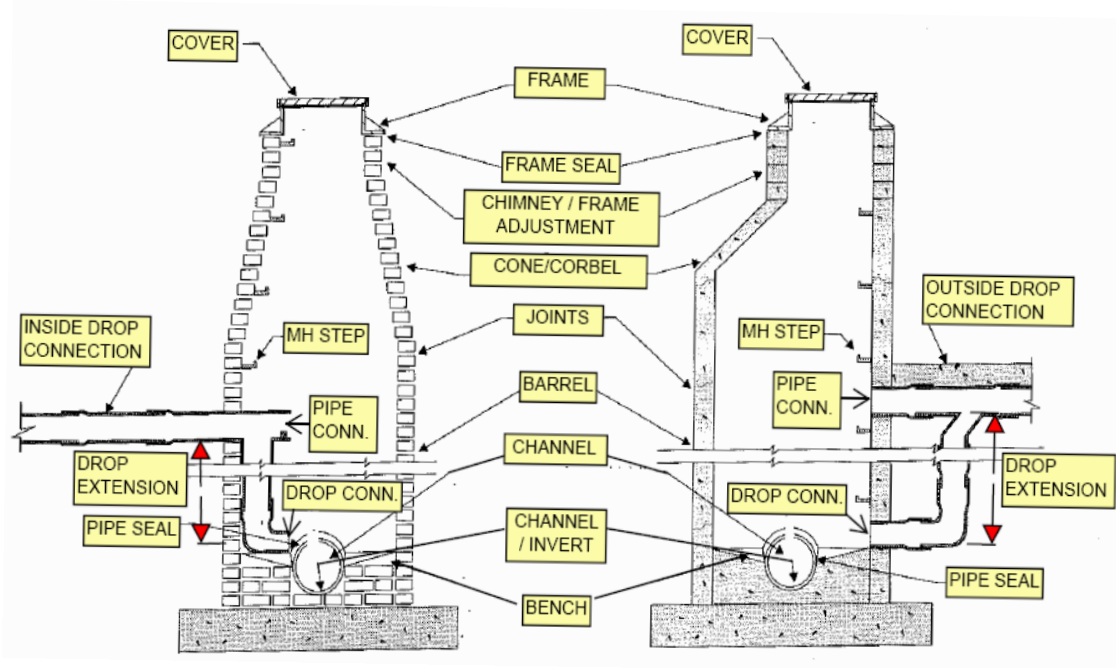
MANHOLE INSPECTION TERMS FOR THE JONES FALLS SEWERSHED**OVERVIEW**

The information provided in this manual should be used for the collection, evaluation and review of all data obtained as part of the Jones Falls Collection System Evaluation and Sewershed Plan's Manhole Inspection Program - City of Baltimore Project Number 994. This information is not intended to account or accommodate all situations or circumstances encountered; rather, it provides the user with general terminology, inspection guidelines for recording and evaluating manhole related data and defects required as part of this project. Should the user encounter specific data that requires further evaluation, please consult Keith Eysaman.

MANHOLE INSPECTION TERMS FOR THE JONES FALLS SEWERSHED

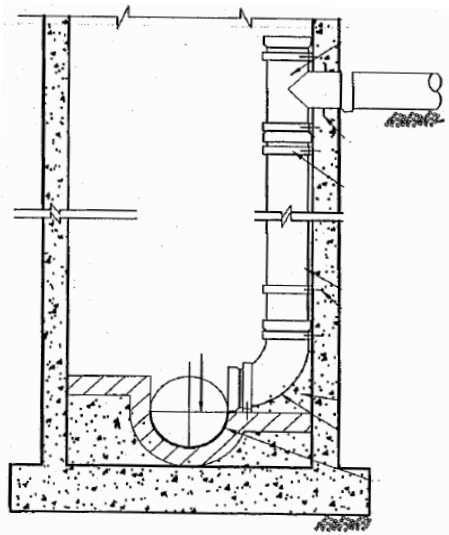
The Following MH Components Shall Be Used When Documenting Manhole Structures In The Jones Falls Sewershed

TYPICAL MANHOLE COMPONENTS

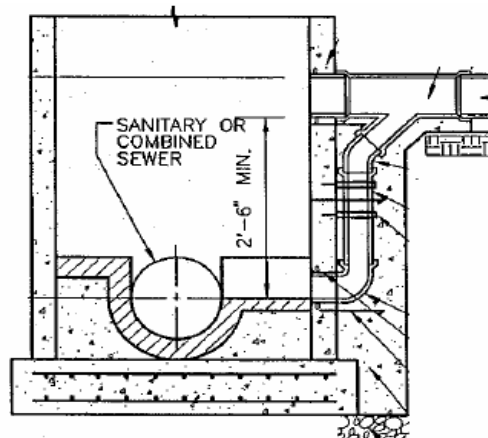


TYPICAL BRICK MANHOLE

TYPICAL PRECAST MANHOLE



TYPICAL INSIDE DROP CONNECTION

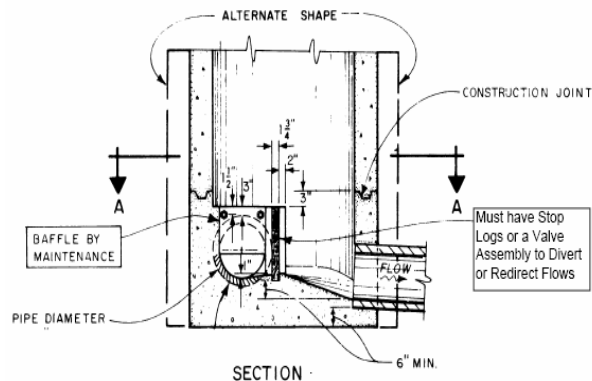


TYPICAL OUTSIDE DROP CONNECTION

MANHOLE INSPECTION TERMS FOR THE JONES FALLS SEWERSHED

The Following Structure Types Shall Be Used When Documenting Manhole Structures In The Jones Falls Sewershed

MANHOLE TYPES



Diversion Manhole

MH Must Contain A Mechanical Feature To Diver Or Redirect Flow

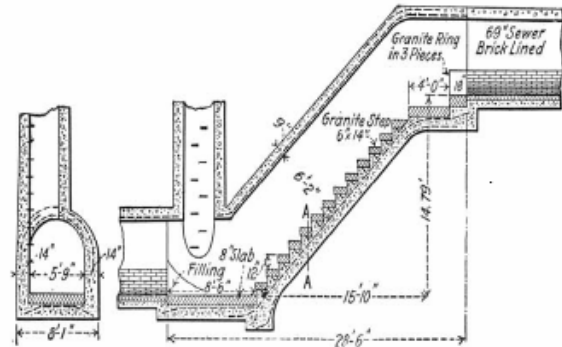


FIG. 35. Flight Sewer at Baltimore.

Flight Sewer Manhole

MH Located Before Or After A Steep Drop In Sewer As Shown Above



Inline Manhole

Can Only Have (1) Influent Pipe And (1) Effluent Pipe



Junction Manhole

MH Must Have Multiple Pipes And/Or Size Pipes Entering The MH



Off-Set (Type 1) Manhole



Off-Set (Type 2) Manhole

MANHOLE INSPECTION TERMS FOR THE JONES FALLS SEWERSHED

MANHOLE TYPES



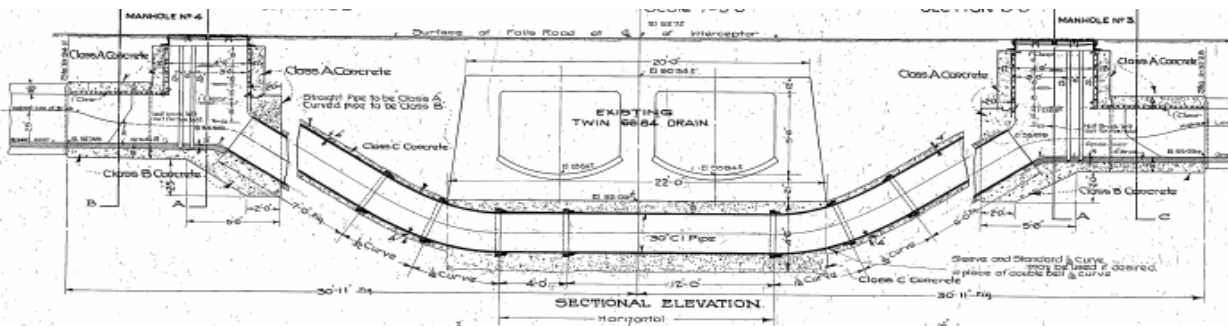
Overflow Manhole

MH will Have Elevated Overflow Pipe
(May Have Flap Type Valve)



Siphon Manhole (Chamber)

Typically A Chamber From A Large Diameter
Sewer Leading Two Or More Smaller Diameter
Siphon Pipes (See Siphon Detail Below)



Sewer Siphon w/ Chambers



Terminal Manhole

MH Cannot Have Any Connections
(Including House or Service Connection)

MANHOLE INSPECTION TERMS FOR THE JONES FALLS SEWERSHED

The Following Criteria Shall Be Used When Documenting Defects in Manhole Structures In The Jones Falls Sewershed

INFLOW AND/OR INFILTRATION

Inflow: Water Entering A MH From The Ground's Surface Via Runoff Or By Direct Connections.

Evidence Of Inflow (Leakage Around Frame & Cover)

Significant Signs of Inflow (Leakage Around Frame And Cover)

Infiltration: Water Entering The MH From Below The Ground's Surface

Evidence Of Infiltration (Wall Staining, Calcification, Etc.)

Evidence Of Multi-Point Infiltration (Staining) Or Active Infiltration

Active Infiltration

INFLOW:



Photo Shows Surface Water Inflow Into MH



Frame Leak Staining In Adjustment Section

INFILTRATION:



Infiltration At The Frame Adjustment Section



Infiltration Staining On MH Wall



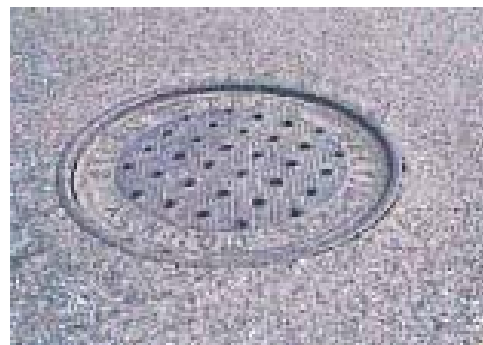
Multi-Point Infiltration Staining On MH Wall



Active Infiltration Leak At MH Joint

MANHOLE INSPECTION TERMS FOR THE JONES FALLS SEWERSHED

The Following Criteria Shall Be Used When Documenting Manhole Structures And Defects In The Jones Falls Sewershed

COVERS**Bolted Manhole Cover****Vented Manhole Cover****Water Tight (WT) Manhole Cover****Water Tight Manhole Insert****Sheeting Flow****Ponding Of MH****Inundated MH**

MANHOLE INSPECTION TERMS FOR THE JONES FALLS SEWERSHED

The Following Criteria Shall Be Used When Documenting Manhole Structures In The Jones Falls Sewershed

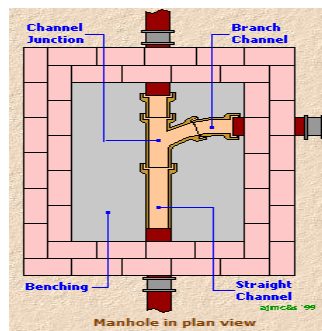
MANHOLE SHAPES



Circular Manhole



"D" Shaped Manhole



Rectangular Manhole



Bench Exists



No Bench Exists



Channel "Fully Open"



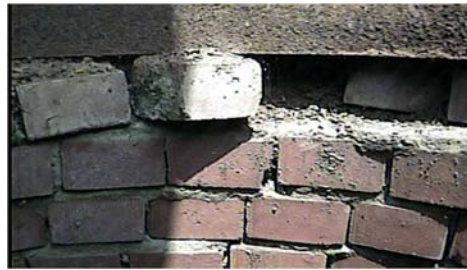
Channel "Partially Open"



Channel "Closed"

MANHOLE INSPECTION TERMS FOR THE JONES FALLS SEWERSHED

The Following Criteria Shall Be Used When Documenting Defects In Manhole Structures In The Jones Falls Sewershed

DEFECTS**Cracks****Root Intrusion****Loose Bricks****Missing Bricks****Deterioration****Leaks/Infiltration****Evidence Of Surge****Surcharged Manhole****Debris****Corroded Steps**